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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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CHOW, LIXI				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary**Application No.**

10/540,799

Applicant(s)VERSTEGEN, EMILE JOHANNES
KAREL**Examiner**

Lixi Chow

Art Unit

2627

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 15 and 16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 8/27/05, 8/21/06
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

DETAILED ACTION

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-14, drawn to an optical scanning device comprising an optical element having at least two adjacent materials with a shaped element between the materials.

Group II, claim(s) 15-16, drawn to a method of manufacturing an optical component.

The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: Group I does not require the step of placing a material between a substrate and a mold; and Group II does not require the optical scanning device.

2. During a telephone conversation with Mr. Michael Belk on 4/17/08 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-14. Affirmation of this election must be made by applicant in replying to this Office action. Claims 15 and 16 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Objections

3. Claims 2, 4, 10 and 12 are objected to because of the following informalities: the word "polarised" or "polarisation" in claims 2 and 4 should be spelled --polarized-- or --polarization--; the word "and" should be added after the word "birefringent" in line 3 of claim 10; the word "polymerised" in claim 12 should be --polymerized--. Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 2, 4-11 and 13-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Koike et al. (US 5,867,315; hereafter Koike).

Regarding claim 1:

Koike discloses an optical scanning device (see col. 4, lines 18-20) for scanning an information layer of an optical record carrier, the device comprising a radiation source for generating a radiation beam (see Fig. 2; beam 2) and an objective system for converging the radiation beam on the information layer (see Figs. 12A, 12B, 13A or 13B), wherein the device includes an optical element (see Fig. 2, element 10) comprising at least two adjacent materials with a shaped interface between the materials (see Fig. 2, reference number 9 indicates the shaped interface), at least the first of the materials being birefringent (see col. 5, lines 54-63), the second material having a refractive index substantially equal to the refractive index of the birefringent material at a predetermined angle (see Fig. 13A; both materials have refractive index of n_0).

Regarding claim 2:

Koike discloses the device as claimed in claim 1, wherein the radiation source is arranged to generate a polarized radiation beam, the optical scanning device further comprising beam rotation means arranged to controllably alter the angle at which the polarized radiation beam is incident on the optical element (see Fig. 6; incident beam 2 is being rotated 45 degree).

Regarding claim 4:

Koike discloses the device as claimed in claim 2, wherein said beam rotation means is arranged to alter the polarization angle of the polarized radiation beam (compare Fig. 1 and Fig. 7; the light ray is altered by 45 degree).

Regarding claim 5:

Koike discloses the device as claimed in claim 1, wherein said second material is birefringent (see col. 8, lines 60-65).

Regarding claim 6:

Koike discloses the device as claimed in claim 1, wherein the second material has a refractive index n_s and the birefringent material has an ordinary refractive index n_o and an extraordinary refractive index n_e , wherein $n_e \geq n_s \geq n_o$ or $n_e \leq n_s \leq n_o$ (see Fig. 5 or 6; n_g corresponds to n_s).

Regarding claim 7:

Koike discloses the device as claimed in claim 1, wherein at least one of the first material and the second material is shaped as a lens (see any of the Figs. 3-14).

Regarding claim 8:

Koike discloses the device as claimed in claim 1, wherein at least of said first material and said second material is shaped as at least one of a planoconcave lens and a planoconvex lens (see Fig. 4 for example; element 11 is a planoconvex lens and element 12 is a planoconcave lens).

Regarding claim 9:

Koike discloses the device as claimed in claim 1, wherein one of the two materials is shaped as a planoconvex lens and the other of the two materials is shaped as a mating planoconcave lens (see Fig. 4 for example; element 11 is a planoconvex lens and element 12 is a planoconcave lens).

Regarding claim 10:

Koike discloses an optical component (see Fig. 13A, element 10) comprising at least two adjacent materials with a curved interface between the materials, at least the first of the materials being birefringent (see col. 5, lines 54-63), the second material having a refractive index substantially equal to the refractive index of the birefringent material at a predetermined angle (see Fig. 13A, refractive index of both material is no).

Regarding claim 11:

Koike discloses the optical element as claimed in claim 10, wherein said interface is curved (see Fig. 13A, element 10).

Regarding claim 13:

Koike discloses the optical component as claimed in claim 10, wherein at least one of the outer surfaces of the optical element is planar (see Fig. 13A, element 10).

Regarding claim 14:

Claim 14 recites similar limitations as in claim 1; therefore, Koike discloses all the features in claim 14.

6. Claims 1, 2, 4-6 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Fukumoto et al. (EP 0453576; hereafter Fukumoto).

Regarding claim 1:

Fukumoto discloses an optical scanning device (see Fig. 1) for scanning an information layer of an optical record carrier, the device comprising a radiation source for generating a radiation beam (see Fig. 1, element 1) and an objective system for converging the radiation beam on the information layer (see Fig. 1, element 8), wherein the device includes an optical element (see Fig. 1, element 5) comprising at least two adjacent materials with a shaped interface between the materials (see Fig. 1, reference number 5c indicates the shaped interface), at least the first of the materials being birefringent (see col. 5, lines 6-8), the second material having a refractive index substantially equal to the refractive index of the birefringent material at a predetermined angle (two prisms 5a and 5b are made from same material, therefore they have equal refractive index).

Regarding claim 2:

Fukumoto discloses the device as claimed in claim 1, wherein the radiation source is arranged to generate a polarized radiation beam, the optical scanning device further comprising beam rotation means arranged to controllably alter the angle at which the polarized radiation beam is incident on the optical element (see Fig. 1, element 4).

Regarding claim 4:

Fukumoto discloses the device as claimed in claim 2, wherein said beam rotation means is arranged to alter the polarization angle of the polarized radiation beam (see col. 4, lines 49-52).

Regarding claim 5:

Fukumoto discloses the device as claimed in claim 1, wherein said second material is birefringent (see col. 5, line 6-8).

Regarding claim 6:

Fukumoto discloses the device as claimed in claim 1, wherein the second material has a refractive index n_s and the birefringent material has an ordinary refractive index n_o and an extraordinary refractive index n_e , wherein $n_e \geq n_s \geq n_o$ or $n_e \leq n_s \leq n_o$ (see col. 5, lines 8-26).

Regarding claim 14:

Claim 14 recites similar limitations as in claim 1; therefore, Fukumoto discloses all the features in claim 14.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Koike in view of Bun (JP11-003528).

Koike discloses all the features in claims 1 and 2; however, Koike fails to disclose that the beam rotating means is arranged to rotate the optical element. On the other hand, Bun discloses an optical scanning device having a beam rotating means arranged to rotate an optical element (see Figs. 4-5; element 18 is being rotated).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the device of Koike to rotate the optical element as suggested by Bun. One of ordinary skill in the art would have been motivated to do this because such modification

reduces the overall weight of the device by eliminating the need to have another optical element that serves to alter the angle of the incident beam.

9. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Koike in view of Tanabe et al. (US 6,304,312; hereafter Tanabe).

Regarding claim 12:

Koike discloses all the features in claim 1; however, Koike fails to disclose that the first material comprises a polymerized anisotropically oriented liquid crystal. On the other hand, Tanabe discloses an optical component comprises a polymerized anisotropically oriented liquid crystal (see col. 2, lines 1-4).

At time the invention was made, it would have been obvious to a person of ordinary skill in the art to utilize a polymerized anisotropically oriented liquid crystal as the first material in the optical component of Koike. One of ordinary skill in the art would have been motivated to do this because the optically anisotropic polymer liquid crystal can have an alignment direction periodically changed to form a grating of different indices, obtaining a high-utilization efficiency by light ray and a high degree of reliability (see Abstract).

10. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fukumoto in view of Bun (JP11-003528).

Fukumoto discloses all the features in claims 1 and 2; however, Fukumoto fails to disclose that the beam rotating means is arranged to rotate the optical element. On the other hand, Bun discloses an optical scanning device having a beam rotating means arranged to rotate an optical element (see Figs. 4-5; element 18 is being rotated).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the device of Fukumoto to rotate the optical element as suggested by Bun. One of ordinary skill in the art would have been motivated to do this because such modification reduces the overall weight of the device by eliminating the need to have another optical element that serves to alter the angle of the incident beam.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Maruyama et al. (US 5,644,437) is a related art reference that teaches an optical element comprise of two adjacent materials.

Wilde et al. (US 6,298,027) is cited to show that uniaxial crystal material and liquid crystal material are art recognized equivalent materials

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lixi Chow whose telephone number is 571-272-7571. The examiner can normally be reached on Mon-Fri, 8:30am to 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on 571-272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.
LC 4/21/08

/Wayne R. Young/
Supervisory Patent Examiner, Art Unit 2627